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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/688,541	10/16/2000	Kazuhito Shimoda	09792909-4652	3044

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EXAMINER	
MARKHAM, WESLEY D	
ART UNIT	PAPER NUMBER
1762	13

DATE MAILED: 10/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/688,541	Applicant(s) SHIMODA ET AL.	
	Examiner Wesley D Markham	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 August 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 9-16* is/are pending in the application.

4a) Of the above claim(s) *1-4* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *11 December 2001* is: a)☒ approved b)☐ disapproved by the Examiner

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *12* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. Acknowledgement is made of applicant's amendment C, filed as paper #11 on 8/13/2002, in which the specification of the instant application was amended, and Claims 9 and 10 were amended. Claims 1 – 4 and 9 – 16 are currently pending in U.S. Application Serial No. 09/688,541 (with Claims 1 – 4 withdrawn from consideration by the examiner as being drawn to a non-elected invention), and an Office Action on the merits follows.

Information Disclosure Statement

2. Acknowledgement is made of the applicant's IDS, filed as paper #12 on 8/13/2002, and the references listed thereon have been considered by the examiner as indicated on the attached copy of the PTO-1449 form.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. The rejection of Claims 10 – 16 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time

the application was filed, had possession of the claimed invention, set forth in paragraph 10 of the previous Office Action, is withdrawn in light of applicant's amendment C. Specifically, amended independent Claim 10 (from which Claims 11 – 16 depend) now requires controlling a thickness of one layer of the plurality of optical layers instead of no more than one layer (i.e., which is inclusive of zero layers). The claims as amended have support in the application as originally filed.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that formed the basis for the rejections under this section made in the previous Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. The rejection of Claims 10 and 16 under 35 U.S.C. 102(b) as being anticipated by Bandyopadhyay et al. (USPN 5,648,115), set forth in paragraph 14 of the previous Office Action, is withdrawn in light of applicant's amendment C. Specifically, amended independent Claim 10 (from Claim 16 depends) now requires controlling a thickness of one layer of the plurality of optical layers instead of no more than one layer (i.e., which is inclusive of zero layers, as is the case in Bandyopadhyay et al.).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holland (USPN 4,311,725) in view of Rahn (USPN 5,483,378) for the reasons set forth in paragraphs 17 – 18 of the previous Office Action.

10. Claims 10 – 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Vrieze et al. (USPN 5,068,568) in view of Holland (USPN 4,311,725) and in further view of Rahn (USPN 5,483,378) and Nulman (USPN 5,754,297) for the reasons set forth in paragraphs 19 – 20 of the previous Office Action.

Response to Arguments

11. Applicant's arguments filed on 8/13/2002 have been fully considered but they are not persuasive.

12. Regarding Claim 9, the applicant argues that there is no motivation to combine Rahn with Holland to achieve the claimed features of the present invention. Specifically, the applicant argues that, since Holland teaches controlling the film thickness by using the optical transmittance of the deposited film, the layer thickness correction technique taught by Rahn is obviated and not necessary. In response, the examiner disagrees. Although Holland does teach controlling the film thickness by using the optical transmittance of the deposited film, Holland also teaches that errors in the thickness-controlling process, specifically determining the precise location of transmittance maxima and minima, can occur (Col.4, lines 21 – 29). To further support this point, Rahn teaches that practically, when films are fabricated on a substrate, available manufacturing tolerances when depositing the films can lead to films that are not exactly the correct thickness (Col.2, lines 24 – 28). Rahn's solution is to remove a portion of the deposited film (Col.2, lines 28 – 29). Therefore, it would have been obvious to one of ordinary skill in the art to perform the applicant's claimed removal process after the deposition process of Holland in order to correct errors in the "as deposited" film thickness and obtain a film of exactly quarter-wave thickness (as taught to be desired by Holland) by removing the "excess" portion of the film. In other words, the motivation for

combining the references is based on increasing the quality (i.e., accurate thickness) of the deposited film(s) of Holland by compensating for and correcting (1) possible errors in locating transmittance maxima and (2) practical, available manufacturing tolerances.

13. Second and regarding Claim 9, the applicant argues that Rahn, on whom the examiner relies for removal of the layer portion, is silent with respect to the removal being conducted during the period when the measured mean light transmittance is stopped and then decreased. In response, the examiner agrees that Rahn is silent in this respect. However, it is the combination of Holland and Rahn that suggests the applicant's claimed invention. Please note that one cannot show non-obviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Briefly, Holland teaches depositing a quarter-wave thick film based on measuring the transmittance maxima of the film. This point is equivalent to the point at which the transmittance begins to decrease. In addition, as set forth above in paragraph 12, Holland teaches that errors in detecting the transmittance maxima can occur (Col.4, lines 21 – 29). In other words, Holland suggests that the exact desired film thickness (i.e., a quarter wave film thickness) may not always be deposited. In view of Rahn, it would have been obvious to one of ordinary skill in the art to remove this "excess" film thickness from the deposited film(s) of Holland in order to achieve the exact desired film thickness, i.e., the quarter wave film thickness taught by Holland.

This "excess" film thickness would correspond to the portion of the film of Holland deposited in the time period from the exact transmittance maxima to the point at which the measured transmittance is changed to be decreased, as claimed by the applicant. Please note that the test of obviousness is not an express suggestion of the claimed invention in any or all references, but rather what the references taken collectively would suggest to those of ordinary skill in the art presumed to be familiar with them (*In re Rosselet*, 146 USPQ 183).

14. Regarding Claim 10, the applicant argues that, although control of the deposition rate using optical characteristics is disclosed in the references, using the optical characteristics to achieve a certain thickness of the "tuning layer" by continuing or terminating deposition is not disclosed in any reference. In response, the examiner strongly disagrees. Specifically, Holland teaches terminating deposition at a transmittance maximum in order to obtain a quarter-wave film (i.e., a film having the required thickness) (Col.4, lines 21 – 24 and Col.6, lines 18 – 26). This is equivalent to using optical characteristics to achieve a certain thickness of the "tuning layer" by continuing or terminating deposition.

15. Also regarding Claim 10, the applicant argues that the examiner asserts that Rahn teaches the feature discussed above in paragraph 14. This is not the case. The examiner has relied on Holland to teach controlling the thickness of the layer(s) by using optical characteristics, not Rahn.

16. The applicant further argues that Holland only discloses terminating deposition at maximum or minimum reflectance, whereas the present invention continues or

terminates deposition based on a thickness of the tuning layer and its optical characteristics. In response, Holland teaches terminating deposition at a reflectance or transmittance maximum or minimum corresponding to a desired film thickness (Col.4, lines 21 – 29). This is the same thing as continuing or terminating deposition based on the thickness of the layer (i.e., whether or not a desired quarter-wave thick film has been deposited) and its optical characteristics (i.e., its reflectance or transmittance).

17. Regarding Claim 11, the applicant also makes essentially the same arguments as presented with respect to Claim 9. The examiner has responded to these arguments above in paragraphs 12 and 13.

Conclusion

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

19. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory

period for reply expire later than SIX MONTHS from the mailing date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (703) 308-7557. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

21. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

22. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Wesley D Markham
Examiner
Art Unit 1762

WDM
WDM
October 19, 2002

SHRIVE P. BECK
SUPERVISORY PATENT EXAMINER
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